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EXAMINER	
FAULK, DEVONA E	
ART UNIT	**PAPER NUMBER**
2644	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/697,626	STANLEY, GERALD R.	
	Examiner	Art Unit	
	Devona E. Faulk	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37.CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/12/2004, with respect to the rejection(s)of claim(s) 1-34 under 102(a) and 103(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Iredale and Gary.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1,15 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709).

Regarding **claim 1**, Kim discloses a driver circuit having an input with an input impedance, wherein the driver circuit comprises a first passive filter (36) coupled to a first speaker driver (30) and a second passive filter (38) coupled to a second speaker driver (32) (See Figure 1; a power amplifier (10) having an input and an output with an output (Figure 1); wherein the input of the power amplifier

receives the incoming electrical signal, and the output of the power amplifier is coupled to the input of the driver circuit (Figure 1). Kim fails to disclose that the power amplifier's input and output impedance is between about 25 percent and about 400 percent of the input impedance of the driver circuit. Iredale discloses an audio system wherein the power amplifier (5) approximately matches the input impedance of a speaker (impedance matching; column 2, lines 30-33). Impedance matching is well known in the art. Thus it would have been obvious to one of ordinary skill to have the impedance of the power amplifier approximately match the input to provide an output that is compatible with a balanced signal input.

Regarding **claim 15**, Kim discloses selecting a first speaker (30, Figure 2) driver having a first cold impedance; selecting a second speaker (32, Figure 2) driver having a second cold impedance (Figure 1); constructing a first passive filter having a second cold impedance (36, Figure 1); constructing a second passive filter having an input and an output (38,Figure 1); coupling the output of the first passive filter to the first speaker driver so that the input of the first passive filter has a first combined cold impedance (Figure 1) ; coupling the output of the second passive filter to the second speaker driver so that the input of the second passive filter has a second combined cold impedance (Figure 1) ; forming a passive arrangement of the first speaker driver, the second speaker driver, the first passive filter and the second passive filter by coupling the input of the first passive filter to the input of the second passive filter, where

the passive arrangement has an arrangement cold impedance(Figure 1) ; constructing a power amplifier an input for receiving said incoming electrical signal and an output (Figure 1) ; and coupling the output of the power amplifier to the input of the first passive filter and to the input of the second passive filter (Figure 1). The method is inherent in the functionality of the system. Kim fails to disclose where the output has output impedance that is between about 25 percent and about 400 percent of the arrangement cold impedance. Iredale discloses an audio system wherein the power amplifier (5) approximately matches the input impedance of a speaker (impedance matching; column 2, lines 30-33). Impedance matching is well known in the art. Thus it would have been obvious to one of ordinary skill to have the impedance of the power amplifier approximately match the input to provide an output that is compatible with a balanced signal input.

Regarding **claim 26**, Kim discloses an amplification means for receiving said incoming electrical signal at an input and providing an amplified signal that is a function of the incoming electrical signal at an output that has an output impedance (10, Figure 1); a first filter means for receiving the amplified signal at an input and providing a first filtered signal that is a function of the amplified signal at an output (36, Figure 1); a second filter means for receiving the amplified signal at an input and providing a second filtered signal that is a function of the amplified signal at an output (38, Figure 1); a first speaker driver coupled to the output of

the first filter means, where the first speaker driver has a first cold impedance and is driven by the first filtered signal (30, Figure 1); a second speaker driver coupled to the output of the second filter means, where the second speaker driver is driven by the second filtered signal (32, Figure 1). Kim fails to specifically disclose that the output impedance of the amplification means is between about 25 percent and about 400 percent of the first cold impedance. Iredale discloses an audio system wherein the power amplifier (5) approximately matches the input impedance of a speaker (impedance matching; column 2, lines 30-33). Impedance matching is well known in the art. Thus it would have been obvious to one of ordinary skill to have the impedance of the power amplifier approximately match the input to provide an output that is compatible with a balanced signal input.

4. **Claims 2,3 ,16 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in further view of Ohyaba et al. (U.S. Patent 4,504,704).

Claims 2 and 3 claim the loudspeaker system of claim 1 wherein the first passive filter comprises an inductor and a capacitor and the second passive filter comprises an inductor and a capacitor. As stated above apropos of claim 1, Kim meets all elements of that claim. Therefore, Kim meets all elements of claims 2 and 3 with the exception of the claimed matter. Kim teaches of filter networks (36,38). Ohyaba discloses a passive filter comprised of an inductor and

capacitor (Figure 11; column 5, lines 59-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Ohyaba's concept of a passive filter comprised of an inductor and capacitor as claimed in order to provide a loudspeaker unit in which a reproducible frequency band can be extended toward a bass zone.

Claims 16 and 17 claim the method of claim 15 wherein constructing the first passive filter comprises coupling an inductor to a capacitor and wherein constructing the second passive filter comprises coupling an inductor to a capacitor respectively. As stated above apropos of claim 15, Kim meets all elements of that claim. Therefore, Kim meets all elements of claims 16 and 17 with the exception of the claimed matter. Ohyaba discloses a passive filter comprised of an inductor and capacitor (Figure 11; column 5, lines 59-63). The method is obvious. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Ohyaba's concept of a passive filter comprised of an inductor and capacitor as claimed in order to provide a loudspeaker unit in which a reproducible frequency band can be extended toward a bass zone.

5. **Claims 4,5 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in further view of Widrow et al. (U.S. Patent 4,751,738).

Claim 4 claims the loudspeaker system of claim 1, wherein the passive filter comprises a Butterworth filter. Kim as modified by

Iredale meets all elements of that claim but fails to disclose that the passive filter is a Butterworth filter. Kim discloses two passive filter networks (36,38). Widrow discloses a passive filter comprised of a fourth-order Butterworth filter. Therefore, it would have been obvious to one of ordinary skill in the art to use Widrow's concept of a passive filter comprised of a fourth-order Butterworth filter for the benefit minimizing frequency roll-offs.

Claim 5 claims the loudspeaker system of claim 4 wherein the first passive filter comprises a fourth-order filter. All elements of claim 5 are comprehended by the rejection of claim 4.

Claim 18 claims the method of claim 5, wherein the passive filter comprises constructing a Butterworth filter. Kim as modified by Iredale meets all elements of that claim but fails to disclose that the passive filter is a Butterworth filter. Kim discloses two passive filter networks (36,38). Widrow discloses a passive filter comprised of a fourth-order Butterworth filter. Therefore, it would have been obvious to one of ordinary skill in the art to use Widrow's concept of a passive filter comprised of a fourth-order Butterworth filter for the benefit minimizing frequency roll-offs.

6. **Claims 6, 7 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in further view of Gary (U.S. Patent 5,533,135).

Claims 6 and 29 claim the loudspeaker system of claim 1 and claim 26 respectively, wherein the first passive filter has an output characteristic termination impedance, the first speaker driver has a

cold impedance, and the output characteristic termination impedance of the first passive filter is between about 25 percent and about 400 percent of the cold impedance of the first speaker driver. **Claim 7** claims the loudspeaker system of claim 6, wherein the second passive filter has an output characteristic termination impedance, the second speaker has a cold impedance, and the output characteristics termination impedance of the second passive filter is between about 25 and about 400 percent of the cold impedance of the second speaker driver. **Claim 29** claims the loudspeaker system of claim 26, wherein the first filter means has an output characteristic termination impedance, the first speaker driver has a cold impedance and the output characteristic termination impedance of the first filter means is between about 25 percent and about 400 percent of the cold impedance of the first speaker driver. Kim as modified by Iredale reads on a first passive filter, a first speaker driver, a second passive filter, and a second speaker driver (Figure 2) but fails to specifically teach that the first passive filter or the second passive filter is between about 25 and about 400 percent of the cold impedance of the first speaker driver. Gary discloses crossover system including a filter section (21) comprising inductances and capacitors whose values are chosen to match the impedance of the speaker (24; column 4, lines 13-17). It would have been obvious to modify Kim as modified by Iredale so that the filter impedance matches that of the speaker driver in order to produce the maximum desired output.

7. **Claims 9,20,33,30,34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in further view of Suguira (U.S. Patent 6,661,290).

Claim 9 claims the loudspeaker system of claim 1, wherein the power amplifier comprises a voltage source amplifier having a ballast resistor with a resistance between about 25 percent and about 400 percent of the input impedance of the driver circuit. **Claim 30** claims the loudspeaker system of claim 26, wherein the amplification means comprises a voltage source amplifier with a ballast resistor having a resistance between about 2 ohms and about 16 ohms. Kim as modified by Iredale teaches of matching the output impedance of the power amplifier to the speaker but fails to disclose that the power amplifier comprises a voltage source amplifier and ballast resistor as claimed. Suguira discloses a power amplifier comprising a voltage source amplifier having a ballast resistor (Figure 6B). The ballast resistor that can have a resistance of 0 or 5 (column 11, line 58 and 63). The nominal impedance for speakers is either 4,8 or 16. A ballast resistor is a resistor inserted into a circuit to compensate for changes, like those arising from temperature fluctuations. It would have been obvious to make the ballast resistance between 25 and 400 percent of the input impedance of the driver circuit so as to better compensate for temperature changes and it would have been obvious to one of ordinary skill in the art at the time of the invention to use Suguira's concept of a power amplifier in order to prevent deterioration of the power amplifier.

Claim 20 claims the method of claim 15, wherein constructing the power amplifier comprises constructing a voltage and coupling a ballast resistor in series with the output of the power amplifier. Kim as modified by Iredale teaches of matching the output impedance of the power amplifier to the speaker but fails to disclose that the power amplifier comprises a voltage source amplifier and ballast resistor as claimed. Suguira discloses a power amplifier comprising a voltage source amplifier having a ballast resistor (Figure 6B) in series with the output of the power amplifier (R3, Figure 9). The ballast resistor that can have a resistance of 0 or 5 (column 11, line 58 and 63). A ballast resistor is defined as a resister inserted into a circuit to compensate fro changes, like those arising from temperature fluctuations. It would have been obvious to make the ballast resistance coupled to the output of the power amplified as taught by Suguira so as to better compensate for temperature changes.

Claim 33 claims the loudspeaker system of claim 9, where the ballast resistor is coupled in series with the output of the voltage source amplifier and the input of the driver circuit. **Claim 34** claims the loudspeaker system of claim 30, where the ballast resistor is coupled n series with the output of the voltage source amplifier and the inputs of the first and second filter means. Kim as modified by Iredale disclose a loudspeaker system have a first and second filter means who receive as their input, the output of a power amplifier (Figures 1 and 2). As stated above apropos of claims 9 and 30 Suguira discloses a power amplifier comprising a voltage source amplifier

including a ballast resistor (R3) coupled in series to the output of the voltage source amplifier (Figure 9). All elements of claims 33 and 34 are comprehended by the rejection of claims 9 and 30.

8. **Claims 10-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in further view of Iredale (U.S. Patent 4,670,709) in view of Alexander (U.S. Patent 6,381,334) in further view of Gary (U.S. Patent 5,533,135).

Claim 10 claims the loudspeaker system of claim 1, wherein the first speaker driver has a cold impedance of about 4 ohms, the first passive filter has an output characteristic termination impedance of about 4 ohms, and the output impedance of the power amplifier is between 1 ohms and about 16 ohms. **Claim 12** claims the loudspeaker system of claim 1, wherein the first speaker driver has a cold impedance of about 8 ohms, the first passive filter has an output characteristic termination impedance of about 8 ohms, and the output impedance of the power amplifier is between 2 ohms and 32 ohms. Kim as modified by Iredale teaches of matching the output impedance of a power amplifier to a speaker but fails to specifically disclose that the first speaker driver has a cold impedance of 4 or 8 ohms and that the passive filter has an output characteristic termination impedance to match that of the speaker driver. Alexander teaches of a driver exhibiting an impedance of approximately 4 to 10 ohms (column 7, lines 32-37) but fails to teach of a filter having an impedance to match. Gary discloses crossover system including a filter section (21) comprising inductances and capacitors whose values are chosen to match

the impedance of the speaker (24; column 4, lines 13-17). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the filter termination impedance and the output impedance of the power amplifier match that of the driver in order to prevent the output impedance from negatively effecting the frequency response.

Claim 11 claims the loudspeaker system of claim 10, wherein the second speaker driver has a cold impedance of about 4 ohms, the second passive filter has an output characteristic termination impedance of about 4 ohms, and the output impedance of the power amplifier is between about 2 ohms and about 8 ohms. **Claim 13** claims the loudspeaker system of claim 12, wherein the second speaker driver has a cold impedance of about 8 ohms, the second passive filter has an output characteristic termination impedance of about 8 ohms, and the output impedance of the power amplifier is between about 4 ohms and about 16 ohms. Kim as modified by Iredale teaches of matching the output impedance of a power amplifier to a speaker but fails to specifically disclose that the first speaker driver has a cold impedance of 4 or 8 ohms and that the passive filter has an output characteristic termination impedance to match that of the speaker driver. Alexander teaches of a driver exhibiting an impedance of approximately 4 to 10 ohms (column 7, lines 32-37) but fails to teach of a filter having an impedance to match. Gary discloses crossover system including a filter section (21) comprising inductances and capacitors whose values are chosen to match the impedance of the

speaker (24; column 4, lines 13-17). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the filter termination impedance and the output impedance of the power amplifier match that of the driver in order to prevent the output impedance from negatively effecting the frequency response.

9. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in further view of Grudin et al. (U.S. Patent Application 2004/0101153).

Claim 14 claims the loudspeaker system of claim 1, further comprising an enclosure, wherein the driver circuit and the power amplifier are each affixed to the enclosure. Kim as modified by Iredale fails to disclose that the driver and power amplifier are within the same enclosure. Grudin discloses a speaker enclosure (6; Figure 9) that houses a driver (5) and an power amplifier (7) (page 5, paragraph 0068; page 7, paragraph 0091). Thus it would have been obvious to one of ordinary skill in the art to use Grudin's concept of a speaker enclosure housing a driver and power amplifier in order to have an integrated speaker system.

10. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in further view of Grudin et al. (U.S. Patent Application 2004/0101153).

Claim 25 claims the method of claim 15, further comprising constructing an enclosure, and mounting the first and second passive

filters, the first and second speaker drivers, and the power amplifier to the enclosure. Kim discloses a speaker unit having a first and second speaker drivers (30,32, Figure 2), first and second passive filter (36,38, Figure 2) constructed in some enclosure. He futher teaches of a audio power amplifier but fails to teach that the amplifier is mounted within enclosure. Grudin discloses a speaker enclosure (6; Figure 9) that houses a driver (5) and a power amplifier (7) (page 5, paragraph 0068; page 7, paragraph 0091). It would have been obvious to one of ordinary skill in the art to use Grudin's concept of a speaker enclosure housing a driver and power amplifier in order to have an integrated speaker system.

11. **Claims 21-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in further view of Iredale (U.S. Patent 4,670,709) in view of Alexander (U.S. Patent 6,381,334).

Claim 21 claims the method of claim 15, wherein selecting the first speaker driver comprises selecting a first speaker driver having a cold impedance of about 4 Ohms. **Claim 23** claims the method of claim 15, wherein selecting the first speaker driver comprises selecting a first speaker driver having a cold impedance of about 8 ohms. Kim as modified by Iredale teaches of matching the output impedance of a power amplifier to a speaker but fails to specifically disclose that the first speaker driver has a cold impedance of 4 or 8 ohms. Alexander teaches of a driver exhibiting an impedance of approximately 4 to 10 ohms (column 7, lines 32-37), which is inclusive of 4 and 8.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have the filter termination impedance and the output impedance of the power amplifier match that of the driver in order to prevent the output impedance from negatively effecting the frequency response.

Claim 22 claims the method of claim 21, wherein constructing a power amplifier comprises constructing a power amplifier where the output has an output impedance that is between about 2 ohms and about 8 ohms. **Claim 24** claims the method of claim 23, wherein constructing a power amplifier comprises constructing a power amplifier where the output has an output impedance that is between about 2 ohms and about 16 ohms. All elements of claims 22 and 24 are comprehended by the rejection of claims 21 and 23.

12. **Claims 8,19 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in further view of Alexander (U.S. Patent 5,097,223).

Claim 8 claims the loudspeaker system of claim 1, wherein the power amplifier comprises a current-feedback amplifier. **Claim 19** claims the method of claim 15, wherein constructing the power amplifier comprises constructing a current-feedback amplifier. **Claim 27** claims the loudspeaker system of claim 26, wherein the amplification means comprises a current-feedback amplifier. Regarding claims 8,19 and 27, Kim as modified by Iredale fails to disclose that the power amplifier comprises a current-feedback amplifier. Alexander

discloses a power amplifier comprises of a current-feedback amplifier (Figures 2; column 2, lines 4--55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use Alexander's concept of a power amplifier comprised of a current-feedback amplifier in order to achieve a high large-signal bandwidth.

13. **Claims 28 and 32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale (U.S. Patent 4,670,709) in view of Alexander (U.S. Patent 5,097,223) in further view of Alexander (U.S. Patent 6,381,334).

Claim 28 claims the loudspeaker system of claim 27, wherein the current-feedback amplifier has an output impedance between about 2 ohms and about 16 ohms. Kim as modified by Iredale and Alexander ('223) fails to specifically disclose that the current-feedback amplifier has an output impedance between 2-16 ohms. Iredale discloses an audio system wherein the power amplifier (5) approximately matches the input impedance of a speaker (impedance matching; column 2, lines 30-33). The nominal impedance for loudspeakers is 4,18 and 16. The current-feedback amplifier reads on power amplifier. Alexander teaches of a driver exhibiting an impedance of approximately 4 to 10 ohms (column 7, lines 32-37) Impedance matching, which for maximum power transfer between an amplifier and a speaker would mean that the impedance of the speaker matches that of power amplifier, is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of

the invention to have the current-feedback amplifier output impedance to match that of the amplifier in order to prevent any effects to the frequency response of the output signal.

Regarding **claim 32**, Kim discloses operating a driver circuit in a temperature range so that an input impedance of the driver circuit is in an operational range; a power amplifier; amplifying the incoming electrical signal; driving the driver circuit with the driving electrical signal. Kim as modified by Iredale and Alexander fails to specifically disclose a current-feedback amplifier as claimed. Iredale discloses an audio system wherein the power amplifier (5) approximately matches the input impedance of a speaker (impedance matching; column 2, lines 30-33). The nominal impedance for loudspeakers is 4,18 and 16. The current-feedback amplifier reads on power amplifier. Alexander teaches of a driver exhibiting an impedance of approximately 4 to 10 ohms (column 7, lines 32-37) Impedance matching, which for maximum power transfer between an amplifier and a speaker would mean that the impedance of the speaker matches that of power amplifier, is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the current-feedback amplifier output impedance to match that of the amplifier in order to prevent any effects to the frequency response of the output signal.

14. **Claim 31** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent 5,598,480) in view of Iredale in view of

Alexander (U.S. Patent 5,097,223) in view of Grudin et al. (U.S. Patent Application 2004/0101153).

Regarding **claim 31**, Kim discloses a speaker system including a driver circuit having a cold input impedance; a power amplifier (10). Iredale discloses an audio system wherein the power amplifier (5) approximately matches the input impedance of a speaker (impedance matching; column 2, lines 30-33). The nominal impedance for loudspeakers is 4,18 and 16. The current-feedback amplifier reads on power amplifier. Iredale discloses Alexander discloses a power amplifier comprised of a current-feedback amplifier (Figures 2; column 2, lines 4-55). Kim as modified by Iredale and Alexander reads on "a current feedback amplifier having an output impedance that is substantially matched to the cold input impedance of the driver circuit" and "wherein the current feedback amplifier receives the incoming electrical signal and drives the driver circuit". Although Alexander teaches of a power amplifier comprised of a current-feedback amplifier, he fails to disclose a speaker enclosure housing the driver circuit and the current feedback amplifier. However the concept of a speaker enclosure housing a driver and an amplifier was well known in the art as taught by Grudin. Grudin discloses a speaker enclosure (6; Figure 9) that houses a driver (5) and a power amplifier (7) (page 5, paragraph 0068; page 7, paragraph 0091). Thus it would have been obvious to one of ordinary skill in the art to use Grudin's concept of a speaker enclosure housing a driver and power amplifier in order to have an integrated speaker system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SINH TRAN
SUPERVISORY PATENT EXAMINER

DEF